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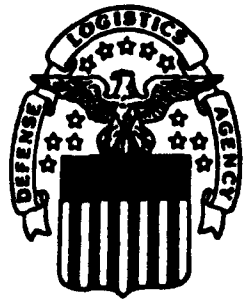
DLA-93-P10141

# LOS ANGELES REGIONAL FREIGHT CONSOLIDATION CENTER POOL DISTRIBUTION UPDATE TO PROJECT DLA-91-P00258

December 1992

OPERATIONS RESEARCH AND ECONOMIC ANALYSIS OFFICE






DEPARTMENT OF DEFENSE
DEFENSE LOGISTICS AGENCY

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DEPARTMENT OF DEFENSE
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DLA-LO

## FOREWORD

The Los Angeles Regional Freight Consolidation Center (RFCC) study is the fourth in a series of studies documenting the impact on transportation costs of pool operations at the southern California site. Accordingly, the purpose, objectives, and methodology closely follow the previous study, Los Angeles RFCC Pool Distribution III (DLA-91-P00258). Overall, this report serves as an addendum to the earlier work.

We would like to thank the DLA Directorate of Supply Operations, Transportation Division, for their constructive comments and suggestions which were invaluable in the preparation of this study.

ROGER C. ROY
Assistant Director
Policy and Plans

## SUMMARY

This update is the fourth report in a series of studies analyzing the monetary loss or savings associated with the operation of a Regional Freight Consolidation Center (RFCC) at Los Angeles, CA.

The first two reports, covering RFCC shipments from December 1988 to December 1989, estimated that RFCC transportation savings were insufficient to defray business expenses. The net results were identified as losses. However, the third study concluded that the RFCC achieved profitability during the first nine months of 1990.

This update examined RFCC operations during the time period May 1991 through April 1992. Unlike before, former Military Service depots at Hill, UT, Red River, TX, Oakland, CA, and San Joaquin, CA are now shipping eligible freight through the Los Angeles RFCC. Also differing from the three previous reports, Round-Robin shipments were broken out with actual data rather than through simulation.

Overall, the latest study estimates annual transportation cost avoidance for the Los Angeles RFCC at between $93,595 and $140,512. Bottom line savings vary depending on underlying transportation rate assumptions. A separate cost avoidance of $272,711 was projected to result from reductions in the number of Government Bill of Ladings issued. Furthermore, the study suggests that RFCC profitability could be improved by increasing consolidation efficiency at Los Angeles and renegotiating Round-Robin service charges between the RFCC and Defense Depot Susquehanna, PA.

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## SECTION 1
## INTRODUCTION

The Defense Logistics Agency's (DLA) Operations Research Office was tasked by the DLA Directorate of Supply Operations, Transportation Division (DLA-OT), to provide an analysis of the savings/loss associated with the operation of the Regional Freight Consolidation Center Program (RFCCP) at the Los Angeles Regional Freight Consolidation Center (RFCC). This is the fourth in a series of studies reviewing pool operations there.

### 1.1 BACKGROUND

The first study of pool operations at the Los Angeles RFCC, DLA-LO Project No. DLA-90-P90108, covering the period December 1988 to June 1989, concluded pool operations had exceeded the cost of direct delivery by an estimated $200,000. DLA-LO Project No. DLA-91-P00070 was the second analysis, covering the period of July 1989 to December 1989.[1] This effort determined that losses in transportation dollars through pooling operations had been reduced to approximately $82,000 for the period.[2] The third study to review pool operations at the Los Angeles RFCC concluded that $89,068 in transportation dollars were saved over the period January through September 1990.[3]

### 1.2 PROBLEM STATEMENT

Determine the magnitude of savings/loss in transportation dollars that DLA is realizing as a result of the implementation of pooling operations for the Los Angeles RFCC.

### 1.3 OBJECTIVES

All objectives are identical to those stated in the previous Los Angeles pool operations study.

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[1] Defense Logistics Agency, Initial Transportation Cost Analysis of the Enhanced Defense Logistics Agency Distribution (EDDS) Los Angeles EDDS Site, March 1990, DLA-90-P90108.

[2] Defense Logistics Agency, Los Angeles EDDS Site Transportation Cost Analysis for the Pooling Phase July - December 1989, October 1990, DLA-90-P00070.

[3] Defense Logistics Agency, Analysis of Pool Distribution Operations at the Los Angeles, California, Regional Freight Consolidation Center, March 1991, DLA-91-P00258.

## 1.4 SCOPE

The study will be based on data contained in the Los Angeles, CA, RFCC monthly history tapes.

The time period of the study is from May 1991 through April 1992.

## 1.5 ASSUMPTIONS

All assumptions are identical to those made in the previous Los Angeles pool operations study.

## SECTION 2
## METHODOLOGY

The methodology used in this study is similar to the methodology used in the previous Los Angeles pool operations study with the following exceptions.

Four former Military Service depots are now sending eligible freight through the Los Angeles RFCC: Defense Depot Hill, UT, Red River Defense Depot, Defense Depot San Joaquin, and Defense Depot Oakland. In this analysis freight originating at Defense Depot Hill will be modeled as if the freight originated at Defense Depot Ogden, UT.

Direct transportation cost and first leg transportation cost to the Los Angeles RFCC from the service depots were modeled using two different methods to account for the fact these depots' traffic rate structures are in transition as they come under DLA management. The least expensive method used the Guaranteed Traffic (GT) rates of the DLA depot closest to the service depot, e.g., the GT rates of Defense Depot Memphis, TN, were used to model GT rates at Red River Defense Depot. The second method used commercial class 50 rates with a 10 percent discount for Less-Than-Truckload (LTL) shipments and commercial class 35 rates for Truckload (TL) shipments. Discounted commercial rates tend to closely approximate the rates paid under the Military Traffic Management Command (MTMC) managed tender process used at the service depots. The actual cost of pooling operations at the Los Angeles RFCC should then fall somewhere between these two estimates.

In the previous Los Angeles pool studies Round-Robin shipments for those depots establishing Round-Robin service were simulated. In this study Round-Robin shipments are included in the actual data and identified by Standard Carrier Alpha Code (SCAC). The purpose of the Round-Robin is to reduce the first leg transportation cost of the RFCC program. Round-Robin shipments are accomplished by consolidating freight to a specific destination, in this case the Los Angeles RFCC region, at participating depots (Defense Depots Richmond, VA, Memphis, TN, and Susquehanna, PA) for 1 week or until a truckload is achieved. The Round-Robin carrier transports the freight from the depot to the Los Angeles RFCC for a fixed charge and returns to the depot with a truckload of vendor freight that was consolidated at the RFCC. The fixed charges for a Round-Robin movement in one direction are as follows: $1,619 for DDMT, $2,349 for DDRV, and $2,329 for DDSP. The beauty of a Round-Robin movement is that it results in a high percentage of utilization of carrier equipment, provided there is enough freight to keep the trucks loaded.

## SECTION 3
## ANALYSIS

### 3.1 RESULTS

Results are presented as follows. Columns are arranged according to depot. "DDSP" is Defense Depot, Susquehanna, PA, "DDJC" is Defense Depot, San Joaquin, CA, "DDCO" is Defense Depot, Columbus, OH, "DDMT" is Defense Depot, Memphis, TN, "DDRV" is Defense Depot, Richmond, VA, and "DDOU" is Defense Depot, Ogden, UT. The section labeled "Direct Delivery Estimate" represents the estimated cost of shipping from the depots direct to the customer. The next sections split the RFCCP cost into an inbound cost (transportation cost from depots to RFCC) and outbound cost (transportation cost from RFCC to customers). The "Total RFCCP Cost" is the sum of the RFCCP inbound cost and the RFCCP outbound cost. This format is consistent with the format presenting results in previous RFCCP pooling studies and is the format used throughout this report to analyze the effect of various scenarios.

Tables A-1 and A-2, found in Appendix A, present the cost comparisons for the period May 1991 through April 1992. Table A-1 results are based on the assumption that transportation rates direct to the customer from the service depots and the transportation rates to the RFCC from the service depots are based on the GT rates of the closest DLA depot. This assumption yields a transportation cost savings of $93,595. Table A-2 results are based on the assumption that transportation rates from the service depots direct to the customer and from the service depots to the RFCC are more closely approximated by commercial class 50 rates with a 10 percent discount for LTL and commercial class 35 rates for TL. This assumption gives a transportation cost savings of $140,512. The estimated annual savings then is between $93,595 to $140,512.

In order to break out the estimated savings by Military Service, two tables were created to show a further breakdown of Tables A-1 and A-2. They are found in Appendix B. Table B-1 corresponds to Table A-1 and Table B-2 to Table A-2. Military Service customers were identified by the first position of the Department of Defense Address Activity Code (DoDAAC). DoDAACs beginning with codes 'R' or 'N' were identified as Navy customers, codes 'A' or 'W' as Army customers, code 'F' as Air Force customers and code 'M' indicated Marine Corps customers. All remaining codes were lumped together under "Other".

In addition to estimating transportation savings, a separate cost avoidance was also identified. The cost avoidance comes from the reduced number of Government Bills of Lading (GBLs) issued by depots participating in the RFCCP. The number of GBLs prepared is estimated to be reduced by 35,417 (36,705 GBLs for direct

shipment minus the 1,288 GBLs for movements from the depots to the RFCC). The cost of a GBL was calculated using GBL processing costs identified in a report by the Defense Audit Service. The costs were adjusted for inflation.[4] To compute the cost avoidance to the Department of Defense (DoD) a combined preparation and processing cost of $7.70/GBL was computed. Of that amount, $3.26 is estimated to be the cost of preparing and processing GBLs to DLA. Using these values the cost avoidance is estimated to be $272,711 to the DoD. Of that amount, $115,459 is the cost avoidance to DLA.

## 3.2 SENSITIVITY ANALYSIS OF ROUND-ROBIN SHIPMENTS

The initial results showed that at DDSP, DDRV, and DDMT the average shipment weights were lower and the average cost per hundredweight were higher than expected on the first leg movement from the depot to the RFCC. Round-Robin movements are in place at these three depots. Two factors can explain the unanticipated results. First, consolidation of the freight going to the RFCC did not appear to be optimal, and second, the rate charged for the Round-Robin movement was higher than the GT rate at DDSP for TL shipments to the same point. Based on this observation, a sensitivity analysis was performed on the Round-Robin shipments to determine the effect of increased consolidation and lower GT rates on the transportation savings.

### 3.2.1 SIMULATION OF ROUND-ROBIN SHIPMENTS

To simulate the operation of the Round-Robin movements, it was necessary to attach the depot ship date, as recorded in the Materiel Release Order (MRO) file, to the database. The ship date was attached by matching the inbound GBL number, found in the RFCC history tapes, with the GBL number of the MRO file. By using this ship date, shipments were built for a 7-day period or until 35,000 lbs were reached. Shipments were costed using the fixed charge of the Round-Robin. Overflow was assumed to move under existing GT rates. The results of the simulation are shown in Appendix C, Tables C-1 and C-2. Simulating the Round-Robin shipments caused the number of shipments originating at each of the three depots to decrease. The resulting increased consolidation improved the savings range from $112,311 (Table C-1) to $159,228 (Table C-2).

### 3.2.2 SIMULATION OF ROUND-ROBIN SHIPMENTS USING GT RATES

The above shipments were then rated using the GT agreements in effect at the respective depots in place of the fixed charges of

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[4] "Review of Costs Associated with the use of Government Bills of Lading and Commercial Bills of Lading (Project 8ST-178)," Defense Audit Service, Report No. 79-108, 29 June 1979.

the Round-Robin program. Tables C-3 and C-4 show the results. The savings range increased to between $154,521 (Table C-3) and $201,438 (Table C-4). This upward shift in savings is principally due to the reduction in first leg cost associated with shipments originating at DDSP. An inspection of the GT rates to the Los Angeles area from DDSP shows that the fixed charge of $2,329 per trip is equivalent to the cost of a 35,775 pound (lb) shipment moving under GT. In other words the GT rates will result in lower cost than the Round-Robin fixed charge whenever the shipment size is less than 35,775 lbs. All actual first leg shipments from DDSP were less than 35,775 lbs during the period studied. The maximum weight was 34,224 lbs. The average weight for the 98 shipments was 12,890 lbs and the median weight was 15,437 lbs. Appendix D contains the distribution of the actual shipment weights.

Based on the observed shipment weights originating at DDSP a lower fixed charge for the Round-Robin is suggested. One possibility is to replace the current fixed charge of $2,329 with $1,820, the cost of a 20,000 lb shipment under the current GT agreement. Applying this lower fixed charge to the simulated Round-Robin shipments yields a total cost of $111,168. This cost result is essentially breakeven in comparison to the cost when these same shipments were rated using the GT rates ($104,825 as shown in Tables C-3 and C-4).

## 3.3 MISSED CONSOLIDATION OF OUTBOUND SHIPMENTS

There is evidence that consolidation of minimum charge pool shipments at the RFCC could be improved. Under the current rate schedule for shipments to customers from the Los Angeles RFCC if the shipment is less than 70 lbs the fixed cost is $24. If the shipment is greater than or equal to 70 lbs and going to points in southern California then the rate is $5.35 per hundredweight (Cwt) with a minimum of $44.00. If the shipment is greater than or equal to 70 lbs and going to points in Arizona or southern Nevada then the rate is $5.95 per Cwt with a minimum of $44.00. A review of the database found that there were 528 instances of multiple minimum charge shipments on the same day to the same customer. (A Customer is defined by Destination Cross Reference (DCR) code.)

For example, if two shipments, one weighing 100 lbs and the second weighing 200 lbs were sent to the same DCR on the same day, the transportation cost for each would be $44.00 and the total cost would be $88.00 (2 * $44.00). If the two shipments had been consolidated, the resulting 300 lbs shipment would have cost only $44.00. The 528 cases represent an estimated additional cost of $15,852 to the RFCCP. A computer printout listing the multiple shipments has been provided to DLA-OT under separate cover. Appendix E shows the distribution of RFCC outbound shipment weights.

# SECTION 4
# CONCLUSIONS AND RECOMMENDATIONS

## 4.1 CONCLUSIONS

Based on the results of our study we make the following conclusions:

- Transportation savings for the period of May 1991 through April 1992 is estimated to be between $93,595 and $140,512.
- Cost avoidance due to the reduction in the number of GBLs prepared under the RFCCP is estimated to be $272,711 to DoD, $115,459 of that amount to DLA.
- The savings level should be more closely represented by results of Table A-1 as the DLA-managed service depots implement their own GTP.
- Consolidation of shipments in the Round-Robin program could be improved, increasing the savings range to between $112,311 and $159,228.
- Consolidation of outbound shipments from the Los Angeles RFCC could be improved for shipments in the minimum charge categories.
- The fixed charge for Round-Robin service between DDSP and the Los Angeles RFCC appears to be too high given the observed shipments sizes originating from DDSP.

## 4.2 RECOMMENDATIONS

The following recommendations are made:

- Increase consolidation efficiency of Round-Robin shipments to reduce first leg transportation cost.
- Increase consolidation efficiency at the RFCC of minimum charge shipments to the same DCR on the same day to reduce second leg transportation cost.
- Show Round-Robin operator historical shipment size data for DDSP and negotiate a lower fixed charge for Round-Robin service between DDSP and the Los Angeles RFCC. Assuming the Round-Robin is perfectly consolidated, a fixed charge of $1,820 yields a total cost that is essentially breakeven with the total cost when those same shipments are rated using the GT agreement.

# APPENDIX A
# RFCC VS DIRECT COSTS USING GT AND DISCOUNTED COMMERCIAL RATES FOR SERVICE DEPOTS

Table A-1. Direct Cost vs RFCCP Cost For Los Angeles RFCC
(With GTP Rates For Service Depots)

Direct Delivery Estimate

| | DDSP | DDJC | DDCO | DDMT | DDRV | DDOU | Defense Depot Red River | Defense Depot Oakland | Total |
|---|---|---|---|---|---|---|---|---|---|
| Weight | 1,263,254 | 10,119,264 | 603,661 | 3,105,968 | 2,247,236 | 4,505,246 | 611,820 | 823,022 | 23,279,471 |
| GBLs | 2,147 | 12,730 | 1,589 | 6,531 | 5,639 | 6,433 | 413 | 1,223 | 36,705 |
| Cost | $176,622 | $904,708 | $98,278 | $446,584 | $333,087 | $381,140 | $70,639 | $68,612 | $2,479,670 |
| $/Cwt | $13.9815 | $8.9405 | $16.2803 | $14.3783 | $14.8221 | $8.4599 | $11.5457 | $8.3366 | $10.6517 |

RFCCP First Leg - Inbound Transportation Cost

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Weight | 1,263,254 | 10,119,264 | 603,661 | 3,105,968 | 2,247,236 | 4,505,246 | 611,820 | 823,022 | 23,279,471 |
| GBLs | 98 | 413 | 234 | 140 | 152 | 175 | 31 | 45 | 1,288 |
| Cost | $141,928 | $171,842 | $59,481 | $195,034 | $210,257 | $113,523 | $43,102 | $15,495 | $950,662 |
| $/Cwt | $11.2351 | $1.6982 | $9.8534 | $6.2793 | $9.3562 | $2.5198 | $7.0449 | $1.8827 | $4.0837 |
| Avg GBL wt | 12,890 | 24,502 | 2,580 | 22,185 | 14,784 | 25,744 | 19,736 | 18,289 | 18,074 |

RFCCP Second Leg - Outbound Transportation Cost

| | | |
|---|---|---|
| Weight(Lb) | 23,279,471 | |
| GBLs | 10,420 | |
| Cost | $1,435,413 | |
| $/Cwt | $6.1660 | $2,386,075 |

| | |
|---|---|
| Total RFCCP Cost | |
| Cost Difference (Direct - RFCCP) | $93,595 |
| ( ) - Loss | |

Table A-2. Direct Cost vs RFCCP Cost For Los Angeles RFCC
(With Commercial Rates For Service Depots)

Direct Delivery Estimate

| | DDSP | DDJC | DDCO | DDMT | DDRV | DDOU | Defense Depot Red River | Defense Depot Oakland | Total |
|---|---|---|---|---|---|---|---|---|---|
| Weight | 1,263,254 | 10,119,264 | 603,661 | 3,105,968 | 2,247,236 | 4,505,246 | 611,820 | 823,022 | 23,279,471 |
| GBLs | 2,147 | 12,730 | 1,589 | 6,531 | 5,639 | 6,433 | 413 | 1,223 | 36,705 |
| Cost | $176,622 | $1,015,480 | $98,278 | $446,584 | $333,087 | $381,140 | $111,581 | $88,695 | $2,651,467 |
| $/Cwt | $13.9815 | $10.0351 | $16.2803 | $14.3783 | $14.8221 | $8.4599 | $18.2376 | $10.7767 | $11.3897 |

RFCCP First Leg - Inbound Transportation Cost

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Weight | 1,263,254 | 10,119,264 | 603,661 | 3,105,968 | 2,247,236 | 4,505,246 | 611,820 | 823,022 | 23,279,471 |
| GBLs | 98 | 415 | 234 | 140 | 152 | 175 | 32 | 46 | 1,292 |
| Cost | $141,928 | $247,798 | $59,481 | $195,034 | $210,257 | $113,523 | $66,035 | $41,486 | $1,075,542 |
| $/Cwt | $11.2351 | $2.4488 | $9.8534 | $6.2793 | $9.3562 | $2.5198 | $10.7932 | $5.0407 | $4.6201 |
| Avg GBL wt | 12,890 | 24,384 | 2,580 | 22,185 | 14,784 | 25,744 | 19,119 | 17,892 | 18,018 |

RFCCP Second Leg - Outbound Transportation Cost

| | | |
|---|---|---|
| Weight(Lb) | 23,279,471 | |
| GBLs | 10,420 | |
| Cost | $1,435,413 | |
| $/Cwt | $6.1660 | $2,510,955 |

Total RFCCP Cost

Cost Difference (Direct - RFCCP) $140,512

( ) - Loss

# APPENDIX B
# DIRECT COST VS RFCCP COST BY MILITARY SERVICE

Table B-1. Direct Cost vs RFCCP Cost By Military Service
(With GTP Rates For Service Depots)

Direct Delivery Estimate

| | Army | Air Force | Marine | Navy | Other | Total |
|---|---|---|---|---|---|---|
| Weight | 3,810,221 | 4,726,487 | 4,782,233 | 8,522,545 | 1,437,985 | 23,279,471 |
| TCNs | 15,271 | 27,131 | 15,664 | 44,346 | 4,128 | 106,540 |
| Cost | $401,952 | $519,573 | $431,589 | $961,051 | $165,505 | $2,479,670 |
| $/Cwt | $10.5493 | $10.9928 | $9.0248 | $11.2766 | $11.5095 | $10.6517 |
| RFCCP First Leg - Inbound Transportation Cost | | | | | | |
| Weight | 3,810,221 | 4,726,487 | 4,782,233 | 8,522,545 | 1,437,985 | 23,279,471 |
| TCNs | 15,271 | 27,131 | 15,664 | 44,346 | 4,128 | 106,540 |
| Cost | $139,683 | $154,435 | $221,860 | $395,441 | $39,243 | $950,662 |
| $/Cwt | $3.6660 | $3.2674 | $4.6393 | $4.6399 | $2.7290 | $4.0837 |
| RFCCP Second Leg - Outbound Transportation Cost | | | | | | |
| Weight | 3,810,221 | 4,726,487 | 4,782,233 | 8,522,545 | 1,437,985 | 23,279,471 |
| TCNs | 15,271 | 27,131 | 15,664 | 44,346 | 4,128 | 106,540 |
| Cost | $264,860 | $283,030 | $269,496 | $497,477 | $120,550 | $1,435,413 |
| $/Cwt | $6.9513 | $5.9882 | $5.6354 | $5.8372 | $8.3833 | $6.1660 |
| Total RFCCP Cost | $404,543 | $437,465 | $491,356 | $892,918 | $159,793 | $2,386,075 |
| Cost Difference (Direct - RFCCP) | | | | | | |
| Saving/Loss | ($2,591) | $82,108 | ($59,767) | $68,133 | $5,712 | $93,595 |

( ) - Loss

Table B-2. Direct Cost vs RPCCP Cost By Military Service
(With Commercial Rates For Service Depots)

Direct Delivery Estimate

| | Army | Air Force | Marine | Navy | Other | Total |
|---|---|---|---|---|---|---|
| Weight | 3,810,221 | 4,726,487 | 4,782,233 | 8,522,545 | 1,437,985 | 23,279,471 |
| TCMs | 15,271 | 27,131 | 15,664 | 44,346 | 4,128 | 106,540 |
| Cost | $473,450 | $545,312 | $472,644 | $989,673 | $170,388 | $2,651,467 |
| $/Cwt | $12.4258 | $11.5374 | $9.8833 | $11.6124 | $11.8491 | $11.3897 |
| RPCCP First Leg - Inbound Transportation Cost | | | | | | |
| Weight | 3,810,221 | 4,726,487 | 4,782,233 | 8,522,545 | 1,437,985 | 23,279,471 |
| TCMs | 15,271 | 27,131 | 15,664 | 44,346 | 4,128 | 106,540 |
| Cost | $183,509 | $168,118 | $252,215 | $429,181 | $42,519 | $1,075,542 |
| $/Cwt | $4.8162 | $3.5569 | $5.2740 | $5.0358 | $2.9568 | $4.6201 |
| RPCCP Second Leg - Outbound Transportation Cost | | | | | | |
| Weight | 3,810,221 | 4,726,487 | 4,782,233 | 8,522,545 | 1,437,985 | 23,279,471 |
| TCMs | 15,271 | 27,131 | 15,664 | 44,346 | 4,128 | 106,540 |
| Cost | $264,860 | $283,030 | $269,496 | $497,477 | $120,550 | $1,435,413 |
| $/Cwt | $6.9513 | $5.9882 | $5.6354 | $5.8372 | $8.3833 | $6.1660 |
| Total RPCCP Cost | $448,369 | $451,148 | $521,711 | $926,658 | $163,069 | $2,510,955 |
| Cost Difference (Direct - RPCCP) | | | | | | |
| Saving/Loss | $25,081 | $94,164 | ($49,067) | $63,015 | $7,319 | $140,512 |
| ( ) - Loss | | | | | | --------- |
| | | | | | | --------- |

# APPENDIX C
# RESULTS OF SENSITIVITY ANALYSIS OF ROUND-ROBIN SHIPMENTS

Table C-1. Direct Cost vs RFCCP Cost For Los Angeles RFCC (Simulating Round-Robin & With GTP Rates For Service Depots)

Direct Delivery Estimate

| | DDSP | DDJC | DDCO | DDNT | DDRV | DDOU | Defense Depot Red River | Defense Depot Oakland | Total |
|---|---|---|---|---|---|---|---|---|---|
| Weight | 1,263,254 | 10,119,264 | 603,661 | 3,105,968 | 2,247,236 | 4,505,246 | 611,820 | 823,022 | 23,279,471 |
| GBLs | 2,147 | 12,730 | 1,589 | 6,531 | 5,639 | 6,433 | 413 | 1,223 | 36,705 |
| Cost | $176,622 | $904,708 | $98,278 | $446,584 | $333,087 | $381,140 | $70,639 | $68,612 | $2,479,670 |
| $/Cwt | $13.9815 | $8.9405 | $16.2803 | $14.3783 | $14.8221 | $8.4599 | $11.5457 | $8.3366 | $10.6517 |

RFCCP First Leg - Inbound Transportation Cost

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Weight | 1,263,254 | 10,119,264 | 603,661 | 3,105,968 | 2,247,236 | 4,505,246 | 611,820 | 823,022 | 23,279,471 |
| GBLs | 61 | 413 | 234 | 118 | 92 | 175 | 31 | 45 | 1,169 |
| Cost | $135,600 | $171,842 | $59,481 | $187,331 | $205,572 | $113,523 | $43,102 | $15,495 | $931,946 |
| $/Cwt | $10.7342 | $1.6982 | $9.8534 | $6.0313 | $9.1478 | $2.5198 | $7.0449 | $1.8827 | $4.0033 |
| Avg GBL wt | 20,709 | 24,502 | 2,580 | 26,322 | 24,426 | 25,744 | 19,736 | 18,289 | 19,914 |

RFCCP Second Leg - Outbound Transportation Cost

| | | | |
|---|---|---|---|
| | Weight(Lb) | 23,279,471 | |
| | GBLs | 10,420 | |
| | Cost | $1,435,413 | |
| Total RFCCP Cost | $/Cwt | $6.1660 | $2,367,359 |
| Cost Difference (Direct - RFCCP) | | | $112,311 |

( ) - Loss

Table C-2. Direct Cost vs RFCCP Cost For Los Angeles RFCC (Simulating Round-Robin & With Commercial Rates For Service Depots)

Direct Delivery Estimate

| | DDSP | DDJC | DDCO | DDMT | DDRV | DDOU | Defense Depot Red River | Defense Depot Oakland | Total |
|---|---|---|---|---|---|---|---|---|---|
| Weight | 1,263,254 | 10,119,264 | 603,661 | 3,105,968 | 2,247,236 | 4,505,246 | 611,820 | 823,022 | 23,279,471 |
| GBLs | 2,147 | 12,730 | 1,589 | 6,531 | 5,639 | 6,433 | 413 | 1,223 | 36,705 |
| Cost | $176,622 | $1,015,480 | $98,278 | $446,584 | $333,087 | $381,140 | $111,581 | $88,695 | $2,651,467 |
| $/Cwt | $13.9815 | $10.0351 | $16.2803 | $14.3783 | $14.8221 | $8.4599 | $18.2376 | $10.7767 | $11.3897 |

RFCCP First Leg - Inbound Transportation Cost

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Weight | 1,263,254 | 10,119,264 | 603,661 | 3,105,968 | 2,247,236 | 4,505,246 | 611,820 | 823,022 | 23,279,471 |
| GBLs | 61 | 415 | 234 | 118 | 92 | 175 | 32 | 46 | 1,173 |
| Cost | $135,600 | $247,798 | $59,481 | $187,331 | $205,572 | $113,523 | $66,035 | $41,486 | $1,056,826 |
| $/Cwt | $10.7342 | $2.4488 | $9.8534 | $6.0313 | $9.1478 | $2.5198 | $10.7932 | $5.0407 | $4.5397 |
| Avg GBL wt | 20,709 | 24,384 | 2,580 | 26,322 | 24,426 | 25,744 | 19,119 | 17,892 | 19,846 |

RFCCP Second Leg - Outbound Transportation Cost

| | | |
|---|---|---|
| Weight(Lb) | 23,279,471 | |
| GBLs | 10,420 | |
| Cost | $1,435,413 | |
| $/Cwt | $6.1660 | $2,492,239 |

Total RFCCP Cost

Cost Difference (Direct - RFCCP) $159,228

( ) - Loss

Table C-3. Direct Cost vs RFCCP Cost For Los Angeles RFCC
(Simulating Round-Robin, Using GTP Rates In Place of
Round-Robin Fixed Charges & With GTP Rates For Service Depots)

Direct Delivery Estimate

| | DDSP | DDJC | DDCO | DDMT | DDRV | DDOU | Defense Depot Red River | Defense Depot Oakland | Total |
|---|---|---|---|---|---|---|---|---|---|
| Weight | 1,263,254 | 10,119,264 | 603,661 | 3,105,968 | 2,247,236 | 4,505,246 | 611,820 | 823,022 | 23,279,471 |
| GBLs | 2,147 | 12,730 | 1,589 | 6,531 | 5,639 | 6,433 | 413 | 1,223 | 36,705 |
| Cost | $176,622 | $904,708 | $98,278 | $446,584 | $333,087 | $381,140 | $70,639 | $68,612 | $2,479,670 |
| $/Cwt | $13.9815 | $8.9405 | $16.2803 | $14.3783 | $14.8221 | $8.4599 | $11.5457 | $8.3366 | $10.6517 |

RFCCP First Leg - Inbound Transportation Cost

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Weight | 1,263,254 | 10,119,264 | 603,661 | 3,105,968 | 2,247,236 | 4,505,246 | 611,820 | 823,022 | 23,279,471 |
| GBLs | 61 | 413 | 234 | 118 | 92 | 175 | 31 | 45 | 1,169 |
| Cost | $104,825 | $171,842 | $59,481 | $183,582 | $197,886 | $113,523 | $43,102 | $15,495 | $889,736 |
| $/Cwt | $8.2980 | $1.6982 | $9.8534 | $5.9106 | $8.8058 | $2.5198 | $7.0449 | $1.8827 | $3.8220 |
| Avg GBL wt | 20,709 | 24,502 | 2,580 | 26,322 | 24,426 | 25,744 | 19,736 | 18,289 | 19,914 |

RFCCP Second Leg - Outbound Transportation Cost

| | | | |
|---|---|---|---|
| | Weight(Lb) | 23,279,471 | |
| | GBLs | 10,420 | |
| | Cost | $1,435,413 | |
| Total RFCCP Cost | $/Cwt | $6.1660 | $2,325,149 |
| Cost Difference (Direct - RFCCP) | | | $154,521 |

( ) - Loss

Table C-4. Direct Cost vs RFCCP Cost For Los Angeles RFCC
(Simulating Round-Robin, Using GTP Rates In Place of Round-Robin
Fixed Charges & With Commercial Rates For Service Depots)

Direct Delivery Estimate

| | DDSP | DDJC | DDCO | DDMT | DDRV | DDOU | Defense Depot Red River | Defense Depot Oakland | Total |
|---|---|---|---|---|---|---|---|---|---|
| Weight | 1,263,254 | 10,119,264 | 603,661 | 3,105,968 | 2,247,236 | 4,505,246 | 611,820 | 823,022 | 23,279,471 |
| GBLs | 2,147 | 12,730 | 1,589 | 6,531 | 5,639 | 6,433 | 413 | 1,223 | 36,705 |
| Cost | $176,622 | $1,015,480 | $98,278 | $446,584 | $333,087 | $381,140 | $111,581 | $88,695 | $2,651,467 |
| $/Cwt | $13.9815 | $10.0351 | $16.2803 | $14.3783 | $14.8221 | $8.4599 | $18.2376 | $10.7767 | $11.3897 |

RFCCP First Leg - Inbound Transportation Cost

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Weight | 1,263,254 | 10,119,264 | 603,661 | 3,105,968 | 2,247,236 | 4,505,246 | 611,820 | 823,022 | 23,279,471 |
| GBLs | 61 | 415 | 234 | 118 | 92 | 175 | 32 | 46 | 1,173 |
| Cost | $104,825 | $247,798 | $59,481 | $183,582 | $197,886 | $113,523 | $66,035 | $41,486 | $1,014,616 |
| $/Cwt | $8.2980 | $2.4488 | $9.8534 | $5.9106 | $8.8058 | $2.5198 | $10.7932 | $5.0407 | $4.3584 |
| Avg GBL wt | 20,709 | 24,384 | 2,580 | 26,322 | 24,426 | 25,744 | 19,119 | 17,892 | 19,846 |

RFCCP Second Leg - Outbound Transportation Cost

| | | | |
|---|---|---|---|
| | Weight(Lb) | 23,279,471 | |
| | GBLs | 10,420 | |
| | Cost | $1,435,413 | |
| Total RFCCP Cost | $/Cwt | $6.1660 | $2,450,029 |
| Cost Difference (Direct - RFCCP) | | | $201,438 |

( ) - Loss

# APPENDIX D
# DISTRIBUTION OF DDSP'S SHIPMENT SIZES TO THE LOS ANGELES RFCC

Table D-1. Distribution of DDSP'S Shipment Sizes To The Los Angeles RFCC

| WEIGHT BREAK | TOTAL WEIGHT SHIPPED | PERCENT OF WEIGHT SHIPPED | NUMBER GBLS |
|---|---|---|---|
| 200 LBS | 2,590 | 0.20 | 23 |
| 500 LBS | 2,645 | 0.21 | 4 |
| 1 K LBS | 6,141 | 0.48 | 4 |
| 2 K LBS | 6,738 | 0.53 | 2 |
| 5 K LBS | 56,676 | 4.49 | 7 |
| 10 K LBS | 95,076 | 7.53 | 7 |
| 15 K LBS | 384,144 | 30.41 | 22 |
| 20 K LBS | 611,742 | 48.43 | 26 |
| 30 K LBS | 97,502 | 7.72 | 3 |
| TOTAL | 1,263,254 | 100.00 | 98 |

# APPENDIX E
# DISTRIBUTION OF POOL SHIPMENTS

Table E-1. Distribution of Pool Shipments

| WEIGHT CATEGORY | WEIGHT SHIPPED | PERCENT WEIGHT | NUMBER GBLS | PERCENT GBLS |
|---|---|---|---|---|
| <70 | 58,089 | 0.25 | 2,346 | 22.51 |
| MIN | 202,251 | 0.87 | 1,655 | 15.88 |
| 200 | 488,133 | 2.10 | 1,513 | 14.52 |
| 500 | 720,759 | 3.10 | 1,006 | 9.66 |
| 1 K | 1,409,568 | 6.05 | 971 | 9.32 |
| 2 K | 4,456,497 | 19.14 | 1,353 | 12.99 |
| 5 K | 6,684,959 | 28.72 | 932 | 8.94 |
| 10 K | 7,850,856 | 33.72 | 584 | 5.60 |
| 20 K | 1,310,157 | 5.63 | 57 | 0.55 |
| 30 K | 98,202 | 0.42 | 3 | 0.03 |
| TOTAL | 23,279,471 | 100.00 | 10,420 | 100.00 |

NOTE: 'MIN' INCLUDES ALL SHIPMENTS BETWEEN 70 AND 199 POUNDS INCLUSIVE.

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This study, requested by the Regional Freight Consolidation Center Program Office, is the fourth in a series of analyses of pool operations at Los Angeles. The Los Angeles Regional Freight Consolidation Center (RFCC) is the only site at which pool operations have been implemented. The scope of the study is based on 1 year's data for the period May 91 through April 92; the analysis focuses solely on pool operations.

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